

**R E M A R K S**

The Office Action mailed March 19, 2004 has been reviewed and carefully considered. Original claim 7 has now been redrafted into independent form. Claims 1-14 remain pending in this case, with claims 1, 7 and 10 being the independent claims. Claims 1 and 10 have been amended. Reconsideration of the above-identified application in view of the following remarks is respectfully requested.

**OBJECTION TO THE DRAWINGS:**

FIG. 8 is objected to for lack of clarity in distinguishing between the prior art graph and the graph of the present invention. The graph of the prior art has accordingly now been converted into a broken line graph in contrast to the solid line graph of the present invention. The amended FIG. 8 is enclosed.

**CLAIM REJECTIONS UNDER 35 U.S.C. 102(b):**

Claims 1, 3, 4 and 5 stand rejected under 35 U.S.C. 102(e) as anticipated by U.S. Patent Publication No. 2003/0063891 to Kim.

Claim 1 has now been amended to recite:

“a first sub-waveguide having a width that gradually increases in a progressing direction of an optical signal such that, starting at an input of the sub-waveguide and with the gradual increase, tapering of the sub-waveguide is directed inwardly in a concave manner;

a second sub-waveguide, continuously joined to the first sub-waveguide, having a width that gradually decreases in the progressing direction of the optical signal passing through the first sub-waveguide.”

Support for the amendment of claim 1 is found in the disclosure (e.g., equation 4, FIG. 2 and accompanying text in the specification for the figure and the equation). Regarding equation 4, the second derivative is negative which indicates a concave downward shape for the top periphery of the first sub-waveguide and a symmetrical construction for the bottom periphery.

Kim, by contrast, fails to disclose or suggest that a second sub-waveguide is “continuously joined to the first sub-waveguide” as explicitly required by the language of claim 1.

U.S. Patent No. 5,917,972 to Davies, which is cited in the Office Action, fails to disclose or suggest the tapering inward of the first sub-waveguide starting from the input in a progressing direction of the optical signal. As stated in the Davies abstract, the width of the Davies waveguide region “tapers outwardly from the input” to amplify input signals.

For at least the above reasons, claim 1 as amended distinguishes patentably over the prior art of record.

Claims 2 and 6 stand rejected under 35 U.S.C. 103(a) as unpatentable over

Kim in view of the applicants' allegedly prior art (AAPA).

Claims 2 and 6 depend from claim 1, and each is deemed to be patentable over Kim at least due to its dependency and the lack of any disclosure in AAPA that could compensate for the deficiencies in Kim with respect to claim 1 of the present invention.

In addition, 35 U.S.C. 103 provides:

(c) Subject matter developed by another person, which qualifies as prior art only under one or more of subsections (e), (f), and (g) of **section 102** of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

The Kim reference was published on April 3, 2003, whereas the present application has a priority date of November 25, 2002. A certified copy of an English translation of the priority document is enclosed.

For purposes of an obviousness rejection, the Kim reference does not qualify as prior art pursuant to 35 U.S.C. 103(c), because, at the time the invention was made, the subject matter of the Kim reference and claims 1-11 of the present application were both owned by or subject to an obligation of assignment to Samsung Electronics. Accordingly, the obviousness rejection of claims 2 and 6 cannot be maintained. Reconsideration and withdrawal of the rejection is

respectfully requested.

Claims 7-9 stand rejected under 35 U.S.C. 103(a) as unpatentable over Kim in view of AAPA.

Claims 8-9 are deemed to be patentable over the cited references for the same reasons set forth above with regard to claims 2 and 6.

Original claim 7 has now been redrafted into independent form.

As to claims 7-9, the rationale cited in item 8 of the Office Action, that discovery of optimum ranges involves only routine skill does not apply to the discovery of optimum shapes. Optimum ranges can be methodically tried out one-by-one, whereas the discovery of an optimum shape is not obvious (specification, e.g., page 15, lines 12-14).

Claims 1, 3-5 and 10-14 stand rejected under 35 U.S.C. 103(a) as unpatentable over U.S. Patent Publication 2002/0154863 to Mizuno et al. (“Mizuno”) in view of U.S. Patent No. 5,917,972 to Davies.

Mizuno describes an input waveguide that bends out at an angle (e.g., FIG. 5), but fails to disclose or suggest the concave tapering inward of a sub-waveguide.

Davies, as set forth above, also fails to disclose or suggest the latter construction.

For at least the above reason, the proposed combination of references fails

to render obvious the invention as recited in claim 1.

Claim 10 also recites the above-quoted claim limitations of claim 1, and is likewise deemed to distinguish patentably over the proposed combination.

As to the other claims, each depends from a base claim and is deemed to be patentable over the cited references at least due to its dependency, although each warrants further consideration based on its additional, individual merits.

In view of the foregoing amendments and remarks, it is believed that this application is now in condition for allowance. The Examiner is invited to contact the undersigned in the event of any perceived outstanding issues so that passage of the case to issue can be effected without the need for a further Office Action.

Amendment  
Serial No. 10/607,466

Docket No. 5000-1-376.

In the event that any additional fee is required to continue the prosecution of this Application as requested, please charge such fee to Deposit Account No. 502-470.

Respectfully submitted,

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Date: 6/17/04

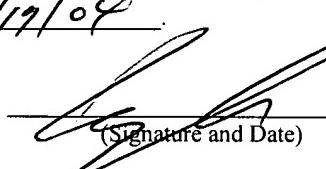
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